Computers in Biology and Medicine

VOLUME 29 1999

LIST OF CONTENTS AND AUTHOR INDEX

PERGAMON

Computers in Biology and Medicine

An International Journal

Editor-in-Chief: ROBERT S. LEDLEY
National Biomedical Research Foundation, Georgetown University Medical Center, 3900 Reservoir Road, N.W., Washington, DC 20007, U.S.A.

Managing Editor: BLAIRE V. MOSSMAN
P.O. Box 13177, Scottsdale, AZ 85267-3177, U.S.A.

European Deputy Editor: FRANCESCO PINCIROLI
Dipartimento di Bioingegneria, Politecnico di Milano, Piazza Leonardo da Vinci, 32, 20133 Milano, Italy

Associate Editors

E. NEELY ATKINSON, U.S.A.
WILLIAM R. AYERS, U.S.A.
MICHAEL BUAS, U.S.A.
C. A. CACERES, U.S.A.
ALDEN W. DUDLEY JR, U.S.A.
ROBERT M. ELASHOFF, U.S.A.
MARIO FERRARO, Italy
PAUL D. FISHER, Canada
DAVID H. FOSTER, U.K.
H. L. L. FRANK, The Netherlands
ROBERT S. GALEN, U.S.A.
DAVID G. GEORGE, U.S.A.
EDMUND M. GLASER, U.S.A.
F. P. GLICK, Canada
H. C. HEMKER, The Netherlands
ROGER A. HORTON, U.S.A.
GEORGE HRIPCSAK, U.S.A.
H. K. HUANG, U.S.A.
ROGER JELLIFFE, U.S.A.
INGER KJAER, Denmark
CASIMIR A. KULIKOWSKI, U.S.A.
CHAN F. LAM, U.S.A.
FRED D. LEDLEY, U.S.A.
GARY S. LEDLEY, U.S.A.
STEVEN L. LEHMAN, U.S.A.
JAMES M. LESTER, U.S.A.
CLIFF LIEBERMAN, U.S.A.
ZHI-QIANG LIU, Australia
HERBERT A. LUBS, U.S.A.
JOCHEN R. MOEHR, Canada
RICHARD MOORE, U.S.A.
KENNETH L. MOSSMAN, U.S.A.
DAVID A. NAGEY, U.S.A.
ANDERS NATTESTAD, Denmark
BRUCE ORCUTT, U.S.A.
YUN PENG, U.S.A.
DENIS J. PROTTI, Canada
JAMES A. REGGIA, U.S.A.
R. P. CHANNING RODGERS, U.S.A.
J. ROSING, The Netherlands
FRANK H. RUDDLE, U.S.A.
PETER SANTAGO, U.S.A.
EUGENE S. SCHNELLER, U.S.A.
JOHN L. SEMMLOW, U.S.A.
WESLEY E. SNYDER, U.S.A.
BENI SOLOW, Denmark
THOMAS O. STAIR, U.S.A.
LAWRENCE STARK, U.S.A.
STANLEY TUHRIM, U.S.A.
SHIRO USUI, Japan
RUSSELL E. WALKER, U.S.A.
RICHARD L. WEBBER, U.S.A.
STUART ZIMMERMAN, U.S.A.
A. E. ZUCKERMAN, U.S.A.

Published 6 issues/annum in January, March, May, July, September and November

Author Services Department—For queries relating to the general submission of articles (including electronic text and artwork) and the status of accepted manuscripts, please contact the Author Services Department: *E-mail*: authors@elsevier.co.uk; *Fax*: +44 (0) 1865 843905; *Tel.*: +44 (0) 1865 843900.

Publication information: Computers in Biology and Medicine (ISSN 0010-4825). For 1999, volume 29 is scheduled for publication. Subscription prices are available upon request from the Publisher or from the Regional Sales Office nearest you or from this journal's website (http://www.elsevier.nl/locate/compbiomed). Further information is available on this journal and other Elsevier Science products through Elsevier's website: (http://www.elsevier.nl). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

Orders, claims, and product enquiries: please contact the Customer Support Department at the Regional Sales Office nearest you: **New York**: Elsevier Science, PO Box 945, New York, NY 10159-0945, USA; phone: (+1) (212) 633 3730 [toll free number for North American customers: 1-888-4ES-INFO (437-4636)]; fax: (+1) (212) 633 3680; e-mail: usinfo-f@elsevier.com. **Amsterdam**: Elsevier Science, PO Box 211, 1000 AE Amsterdam, The Netherlands; phone: (+31) 20 4853757; fax: (+31) 20 4853432; e-mail: nlinfo-f@elsevier.nl. **Tokyo**: Elsevier Science, 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047; e-mail: info@elsevier.co.jp. **Singapore**: Elsevier Science, No. 1 Temasek Avenue, #17-01 Millenia Tower, Singapore 039192; phone: (+65) 434 3727; fax: (+65) 337 2230; e-mail: asiainfo@elsevier.com.sg. **Rio de Janeiro**: Elsevier Science, Rua Sete de Setembro 111/16 Andar, 20050-002 Centro, Rio de Janeiro - RJ, Brazil; phone: (+55) (21) 509 5340; fax: (+55) (21) 507 1991; e-mail: elsevier@campus.com.br [Note (Latin America): for orders, claims and help desk information, please contact the Regional Sales Office in New York as listed above]

Cooperating Societies—American Institute of Nutrition; American Society of Biological Chemists; American Society for Pharmacology and Experimental Therapeutics Inc.; Association for Computing Machinery: Biophysical Society; Pattern Recognition Society; Federation of European Biochemical Societies; The Danish Biochemical Society; Societa Italiana di Biochimica; Nederllands Vereniging Voor Biochemie; Sveriges Biokemiska Forening.

Listing as a cooperating society does not imply endorsement or sponsorship of *Computers in Biology and Medicine* by individual societies.

CONTENTS OF VOLUME 29

Number 1

C. B. Reininger, R. Lasser, M. Rumitz, C. Böger and L. Schweiberer 1 Computational analysis of platelet adhesion and aggregation under stagnation point flow conditions

Rudolf Karch, Friederike Neumann, Martin Neumann and Wolfgang Schreiner 19 A three-dimensional model for arterial tree representation, generated by constrained constructive optimization

Eytan Ruppin, Elad Ofer, James A. Reggia, Kenneth Revett and Sharon Goodall 39 Pathogenic mechanisms in ischemic damage: a computational study

Mihail Popescu, Paul Gader, James Keller, Cerry Klein, Joe Stanley and Charles Caldwell 61 Automatic karyotyping of metaphase cells with overlapping chromosomes

Terry Fagan 83 Exact 95% confidence intervals for differences in binomial proportions

Kip Canfield 89 Improving interorganizational data interchange for drug development

Number 2

Fred K. Hoehler 101 Sample size calculations when outcomes will be compared with an historical control

Agus Priatna, Cynthia B. Paschal and Richard G. Shiavi 111 Evaluation of linear diaphragm–chest expansion models for magnetic resonance imaging motion artifact correction

H. Olkkonen, P. Pesola, A. Valjakka and L. Tuomisto 129 Gain optimized cosine transform domain LMS algorithm for adaptive filtering of EEG

Holger G. Adelmann 137 An edge-sensitive noise reduction algorithm for image processing

Paola Campadelli, Cristina Gangai and Fabio Pasquale 147 Automated morphometric analysis in peripheral neuropathies

Number 3

I. R. Greenshields and F. DiMario Jr. 157 A system for computing neuromorphometry from magnetic resonance images

Lemont Baker and Richard Shiavi 175 Detection of bursts of microneurographic activity and estimation of burst parameters

M. Samonas and M. Petrou 191 Multiresolution restoration of medical signals using the renormalization group and the super-coupling transforms

Luis Antonio Aguirre, Vinicius C. Barros and Álvaro V. P. Souza 207 Nonlinear multivariable modeling and analysis of sleep apnea time series

Number 4

Edward F. Krieg Jr, James S. Kesner and Edwin A. Knecht 229 An algorithm for detecting features of the hormone profiles of the human menstrual cycle

Francisco J. Sanchez-Marin 243 Automatic segmentation of contours of corneal cells

J. V. Ringwood 259 Anaerobic threshold measurement using dynamic neural network models

Erkki Mäkelä, Katariina Juhola and Martti Juhola 273 Predicting the development of a homogenous population in an industrialized country

Number 5

Elias Zintzaras and Axel Kowald 283 A comparison of amino acid distance measures using procrustes analysis

Martin H. Kroll, Ken Emancipator, David Floering and Daniel Tholen 289 An algorithm for finding the linear region in a nonlinear data set

Krishnan Ramaswamy and William E. Higgins 303 Interactive dynamic navigation for virtual endoscopy

Gleb Secretta and Peter H. Gregson 333 Automated registration of multimodal brain image sets using computer vision methods

Number 6

A. Belič, I. Grabnar, R. Karba, A. Mrhar, T. Irman-Florjanc and S. Primožič 361 Interdependence of histamine and methylhistamine kinetics: modelling and simulation approach

Dixi Xue and Robert E. Albright Jr 377 Microcomputer-based technique for 3-D reconstruction and volume measurement of computed tomographic images. Comparison of geometric and planimetry post-operative tumor volume effects on patient survival

Paolo B. DePetrillo, d'Armond Speers and Urs E. Ruttimann 393 Determining the Hurst exponent of fractal time series and its application to electrocardiographic analysis

M. Abend, O. Bubke, S. Hotop, C. Krawehl-Nakath, C. Willy, T. Sohns and D. van Beuningen 407 Estimating medical resources required following a nuclear event